

Of course! Here is a fill-in-the-blank exercise to test your understanding of class constructors and method overloading.

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## Fill-in-the-Blank: Constructors & Overloading

**Instructions:** Read the scenarios and fill in the blanks (\_\_\_\_) with the correct code or keyword.

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### Part 1: Constructor Overloading

**Scenario:** You're building a system to catalog books. A new book entry can be created with no information, with just a title and author, or with all details including the page count.

Java

```
public class Book {  
    private String title;  
    private String author;  
    private int pages;  
  
    // 1. A default constructor.  
    public Book() {  
        this.title = "Unknown";  
        this.author = "____"; // BLANK A  
        this.pages = 0;  
    }  
  
    // 2. A constructor with two parameters.  
    public Book(String title, String author) {  
        this.title = title;  
        this.author = author;  
        this.____ = 0; // BLANK B  
    }  
}
```

```

// 3. A constructor with all parameters.
public Book(String title, String author, int pages) {
    this.title = title;
    this.author = author;
    this.pages = pages;
}

// 4. The process of creating multiple constructors in the same class
// is known as ____ overloading.
// BLANK C
}

public class Library {
    public static void main(String[] args) {
        // 5. Create a Book object using the default constructor.
        Book book1 = ____ Book(); // BLANK D

        // 6. Create a Book object with a title and author.
        Book book2 = new Book("Moby Dick", "____"); // BLANK E

        // 7. Create a Book object with all details.
        Book book3 = new Book("Dune", "Frank Herbert", ____); // BLANK F
    }
}

```

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## Part 2: Method Overloading

**Scenario:** The Book class now needs a way to set the price. The price can be set as a flat amount, or it can be calculated based on a per-page cost.

Java

```

public class Book {
    // ... (previous code from Part 1)

```

```

private double price;

// 8. A method to set a flat price.
public void setPrice(____ price) { // BLANK G
    this.price = price;
}

// 9. A method to calculate the price based on page count.
public void setPrice(double costPerPage, ____ pages) { // BLANK H
    this.price = costPerPage * pages;
}

// 10. Having multiple methods with the same name but different
//     parameters is called ____ overloading.
//     BLANK I
}

public class Bookstore {
    public static void main(String[] args) {
        Book myBook = new Book("1984", "George Orwell", 328);

        // 11. Call the method to set a flat price of $15.99.
        myBook.setPrice(____); // BLANK J

        // 12. Call the method to calculate the price at $0.05 per page.
        myBook.setPrice(0.05, ____); // BLANK K
    }
}

```